

Properties of Matter

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- * Almost all substances are classified as solid, liquid or gas.
- All matter has specific properties & make up
 - Solids - Have definite shape & volume - can be flexible, but not compacted
 - Liquids - Have definite volume, not shape
 - gases - Don't have definite shape or volume - easily compressed

Physical Properties

- Characteristics that can be observed or measured ~~without~~ without changing the sample's composition.
- Also describe pure substances
- * Includes Density, Color, Odor, Hardness, Melting Pt. & Boiling Pt.

Chemical Properties

- Ability for substances to combine with or change into one or more other substances (also inability to combine/change)
- * Includes Flamability, reaction to acids/other substances

Changes in Matter

Physical Change

- A change that alters a substance without changing its chemical make up
 - * Includes tearing, cutting, folding, changing state, dissolving (phase change)
- Generally reversible in nature - can bring back with at least a little effort.

Chemical Change

- process where one or more substances changes into a new substance
- Composition & Properties have changed

ex) Iron reacts w/ oxygen to become Iron oxide or rust

* Includes decomposition, explosion, rusting, oxidizing, corroding, tarnishing, fermenting, burning or rotting

Evidence of a chemical reaction

- Chem. reaction always causes change of some properties of substances

* Includes odor change, color change, temp change, formation of gas, precipitate formation (solid formed from 2 liquids reacting), production of light

Law of conservation of Matter

- Matter can't be created or destroyed (not by us in lab)

- Mass is conserved

- All atoms that went into a reaction must come out - in some form

ex) Burning a piece of wood causes a \downarrow in mass - some mass was changed to CO_2 & floated away (not destroyed)

- Mass before = Mass after (if performed carefully)